What is claimed is:

1. A method for operating an afterburner device (1), especially for chemical reformers for obtaining hydrogen, for making heat available from fuels and/or residual gases from a reforming process and/or from a fuel cell process, having a nozzle (2) for metering in fuel and/or residual gases and/or air into a combustion chamber (8) that is filled at least in part with foamed ceramics (4), and having a discharge opening (7) for discharging the combustion gases,

including the following method steps:

- recording the speed of combustion in combustion chamber (8) and/or in the foamed ceramics (4),

- recirculating at least a part of the combustion gases to a heat exchange channel (18) that is thermally coupled to the combustion chamber (8) and/or the foamed ceramics (4) and

- regulating the proportion of the recirculated combustion gases by changing the quantity of the recirculated combustion gases.

2. The method as recited in Claim 1, wherein the method includes a method step through which the speed of combustion in combustion chamber (8) and/or in the foamed ceramics (4) is recorded by a temperature measurement, especially by an infrared light measurement.

3. The method as recited in Claim 1 or 2, wherein the quantity of the recirculated combustion gases is regulated based on the established speed of combustion in the combustion chamber (8) and/or the foamed ceramics (4).

4. The method as recited in one of Claims 1 through 3, wherein the method includes a method step by which the supply

of fuel, residual gas and/or air is regulated as a function of the recvorded speed of combustion.

5. The method as recited in Claim 4,
wherein at too high a temperature or too great a speed of combustion, the supply of air is increased by the air supply (3) or the air proportion in the combustion chamber (8).

6. The method step as recited in one of Claims 1 through 5,
wherein the method includes a method step by which the combustion chamber (8) and/or the foamed ceramics (4) are electrically heated.

7. An afterburner device (1), especially for chemical reformers for obtaining hydrogen, for making heat available from fuels and or residual gases from a reforming process and/or from a fuel cell process, having at least one nozzle (2) for metering in fuel and residual gases into a combustion chamber (8) that is situated in a first housing (5) and at least one air supply (3),
wherein the combustion chamber (8) is filled at least in part with heat resistant, open-pored foamed ceramics (4), which is coated at least in part with a catalytic material.

8. The afterburner device as recited in Claim 7,
wherein the catalytic material is made up of ZnCuO and/or CuO.

9. The afterburner device as recited in Claim 7 or 8,
wherein the foamed ceramics (4) are made at least in part of silicon carbide.

10. The afterburner device as recited in one of Claims 7 through 9,
wherein the foamed ceramics (4) are made open-pored by reticulating.

11. The afterburner device as recited in one of the Claims 7 through 10,
wherein the foamed ceramics (4) are electrically heatable.

12. The afterburner device as recited in one of the Claims 7 through 11,
wherein the foamed ceramics (4) are in good heat-conductive contact with at least a part of the first housing (5).

13. The afterburner device as recited in one of Claims 7 through 12,
wherein heat conducting elements (23) run within the first housing (5).

14. The afterburner device as recited in Claim 13,
wherein the heat conducting elements (23) are made up of metal or a metal alloy and run in the foamed ceramics (4) or in the region of the air supply (3).

15. The afterburner device as recited in one of Claims 7 through 14,
wherein the afterburner device (1) has at least one recirculating line (16) for recirculating the combustion gases created during the combustion into at least one heat exchange channel (18), which is thermally coupled to the combustion chamber (8) or the foamed ceramics (4), and guides the exhaust gas heat into the combustion chamber (8), into the foamed ceramics (4) and/or into the region of the air supply (3).

16. The afterburner device as recited in Claim 15,
wherein the afterburner device (1) has a controller (17) that regulates or controls the recirculating of the combustion gases created during the combustion into the at least one heat exchange channel (18).

17. The afterburner device as recited in Claim 15 or 16, wherein the at least one heat exchange channel (18) is made up of tubes (21), especially in hollow cylindrical shape.

18. The afterburner device as recited in one of Claims 15 through 17,
wherein at least a part of the heat exchange channels (18) is situated radially about the combustion chamber (8), parallel to an axis (22).

19. The afterburner device as recited in Claims 15 through 17,
wherein at least a part of the heat exchange channels (18) runs through the combustion chamber (8) or the foamed ceramics (4).

20. The afterburner device as recited in Claims 15 through 17,
wherein the at least one heat exchange channel (18) guides the exhaust gas flow onto and/or about the first housing (5)